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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

TIMORY, KABIR A

ART UNIT	PAPER NUMBER
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2611

MAIL DATE	DELIVERY MODE
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02/27/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/779,622	Applicant(s) KITAKADO, JUN	
	Examiner KABIR A. TIMORY	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6,7,10-12,17,21-26 and 32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 7, 10-12, 17, 21-26, and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. This office action is in response to the amendment filed on 12/11/2008. Claims 1, 6, 7, 10-12, 17, 21-26, and 32 are pending in this application and have been considered below. Claims 2-5, 8, 9, 13-16, 18-20, and 27-31 are cancelled by the applicant.
2. The rejection under 35 USC 112 1st paragraph is corrected by the amendment. Therefore, the rejection is withdrawn.
3. Applicant arguments regarding the rejection under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. (JP 09-205390) in view of Tarusawa et al. (US 5,715, 525) have been fully considered but they are **not persuasive**. The examiner thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meets the claimed limitation as rejected.

(1) Applicant's argument: "Accordingly, since Tarusawa et al. does not teach or suggest a display content switch unit that is configured to **sequentially switch the display content by the display unit periodically**, independent claim 1 is patentable over the combined teachings of Ozaki and Tarusawa et al."

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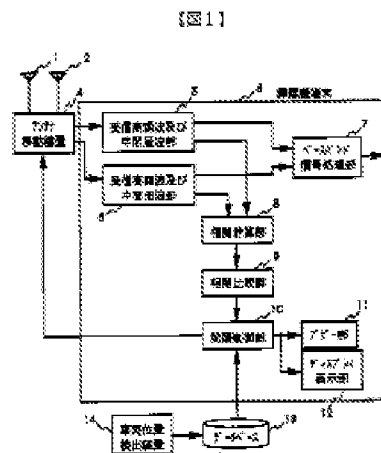
Examiner's response: Ozaki et al. disclose that the display unit 12 generates a completion report and correlation values of the received signal. Therefore, it would be obvious to one skilled in the art to use the display unit of Ozaki et al. to selectively display estimated correlation value between said signals of said plurality of streams and a magnitude level of said estimated correlation value as display content. Moreover, in paragraph 0009, Ozaki et al. clearly disclose that **“a correlation value is calculated from the signal level”**. One of ordinary skilled in the art recognizes that signal level is the magnitude level of a signal. Thus based on this portion of paragraph 0009 of Ozaki et al. it would be obvious to one skilled in the art that the display unit 12 of figure 1, does display the correlation value, which is calculated from the signal level which corresponds to magnitude level of estimated correlation value. Ozaki et al. discloses all of the subject matter as described above except for specifically teaching switch unit configured to sequentially switch the display content by said display unit periodically.

However, in column 5, lines 39-49, Tarusawa et al. in the same field of endeavor disclose **“The other switch SW1 is selectively switched to terminal A or B, so that space diversity reception is carried out, whereby either the antenna A1 or the antenna A2 is selectively used depending on the reception conditions thereof during the FDD system is used. For this purpose, the level of the reception signals from the reception amplifier RA is measured and the result is provided to the controller 20. The controller 20 periodically alters the control signal CS1, and then, based on the level of the reception signals, determines which antenna A1 or A2 is advantageous for reception, selecting the decided antenna A1 or A2”**. Clearly, in this paragraph Tarusawa et al. disclose a switching mechanism along with a controller that periodically switches

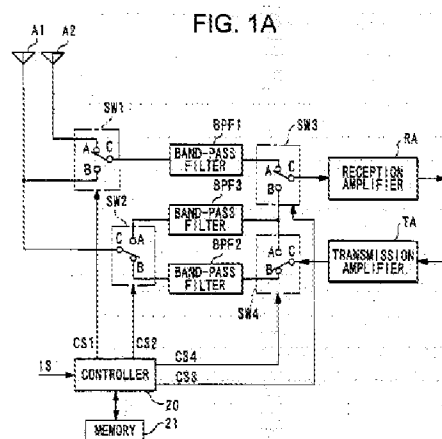
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between space diversity reception antennas and select an antenna based on the measured signal level.

Let's look at the space diversity antenna system of Ozaki et al. as shown in figure 1 below:



Now let's look at the space diversity antenna system of Tarusawa et al. as shown in figure 1A below:



These two systems have similar diversity configuration; therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to use the switching mechanism of Tarusawa et al. to modify the system and method of Ozaki

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et al. in order to display the completion report and correlation values of the received signal using the switching mechanism and select the desired diversity antenna based on the signal measurements.

4. Applicant's arguments with respect to claims 22, 24, and 26 have been considered but are moot in view of new ground(s) of rejection because of the amendment.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1, 6, 7, 10-12, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. (JP 09-205390) in view of Tarusawa et al. (US 5,715, 525).**

Regarding claim 1:

As shown in figure 1, Ozaki et al. discloses an adaptive array radio communication apparatus having a plurality of antennas (1 and 2 in figure 1), comprising:

- an estimation unit configured to estimate a correlation value between signals of a

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plurality of streams received at respective said plurality of antennas (8 in figure 1, paragraph 9)

- a display unit configured to display said estimated correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying correlation values) (12 in figure 1, paragraph 0009),
- an antenna correlation adjustment unit (10 in figure 1) configured to cause the correlation value between said signals of said plurality of streams to be altered manually by a user (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user) (paragraph 0009).

Ozaki et al. disclose of the subject matter as described above including display unit (12 in figure 1) to display the correlation values and report completion except for specifically teaching a display content switch unit configured to sequentially switch the display content by said display unit periodically, wherein said display unit selectively displays said estimated correlation value between said signals of said plurality of streams and a magnitude level of said estimated correlation value as a display content.

However Ozaki et al. disclose that the display unit 12 generates a completion report and correlation values of the received signal. Therefore, it would be obvious to one skilled in the art to use the display unit of Ozaki et al. to selectively display estimated correlation value between said signals of said plurality of streams and a magnitude level of said estimated correlation value as display content. Moreover, in paragraph 0009, Ozaki et al. clearly disclose that **“a correlation value is calculated from the signal level”**. One of ordinary skilled in the art recognizes that signal level is

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the magnitude level of a signal. Thus based on this portion of paragraph 0009 of Ozaki et al. it would be obvious to one skilled in the art that the display unit 12 of figure 1, does display the correlation value, which is calculated from the signal level which corresponds to magnitude level of estimated correlation value.

Ozaki et al. discloses all of the subject matter as described above except for specifically teaching switch unit configured to sequentially switch the display content by said display unit periodically.

However, Tarusawa et al. in the same field of endeavor teach switch unit configured to sequentially switch the display content by said display unit periodically (SW1, SW2 in figure 1A, col 5, lines 29-67). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to include switching methodology as taught by Tarusawa et al. to modify the system and method of Ozaki et al. in order to space diversity reception is carried out, whereby one of the diversity antenna is selectively used depending on the reception conditions (see col 5, lines 39-43).

Regarding claim 6:

Ozaki further discloses:

- an actuation unit configured to automatically actuate said estimation unit and said display unit (space control section is interpreted to automatically actuate said estimation unit and said display unit) (10 in figure 112 in figure 1).

Regarding claim 7:

Ozaki further discloses:

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- an actuation unit configured to actuate said estimation unit and said display unit in accordance with designation by a user (this limitation is obvious because most communication devices such as mobile phones have decoder to estimate the original signals and display the signal information in the display of the device, which can be adjusted manually by the user) (12 in figure 1).

Regarding claim 10:

Ozaki further discloses:

- an actuation unit configured to automatically actuate said estimation unit and said antenna correlation adjustment unit (space control section in figure 1 is interpreted to automatically actuate said estimation unit and said display unit) (12 in figure 1).

Regarding claim 11:

Ozaki further discloses:

- an actuation unit configured to actuate said estimation unit and said antenna correlation adjustment unit in accordance with designation by a user (this limitation is obvious because most communication devices such as mobile phones have decoder to estimate the original signals and display the signal information in the display of the device, which can be adjusted manually by the user) (12 in figure 1).

Regarding claim 12:

As shown in figure 1, Ozaki discloses an antenna correlation display method of an adaptive array radio communication apparatus having a plurality of antennas (1 and 2 in figure 1), said method comprising the steps of:

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- estimating a correlation value between signals of a plurality of streams received at respective said plurality of antennas (8 in figure 1, paragraph 9), and
- displaying, on a display, said estimated correlation value between said signals of said plurality of streams (displaying report is interpreted to be displaying correlation values) (12 in figure 1, paragraph 0009);
- receiving a user input for causing the estimated correlation value to be altered by a user (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user) (paragraph 0009); and
- readjusting the plurality of antennas (1, 2, and 10 in figure 1) based on the user-altered correlation value (moving antennas according to spacing data is interpreted to be user-altered correlation value) (paragraph 0009); and

Ozaki et al. disclose of the subject matter as described above including display unit (12 in figure 1) to display the correlation values and report completion except for specifically teaching a display content switch unit configured to sequentially switch the display content by said display unit periodically, wherein said display unit selectively displays said estimated correlation value between said signals of said plurality of streams and a magnitude level of said estimated correlation value as a display content.

However Ozaki et al. disclose that the display unit 12 generates a completion report and correlation values of the received signal. Therefore, it would be obvious to one skilled in the art to use the display unit of Ozaki et al. wherein said estimated correlation value between said signals of said plurality of streams and a magnitude level of said estimated correlation value are displayed as display content on the display.

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Moreover, in paragraph 0009, Ozaki et al. clearly disclose that **“a correlation value is calculated from the signal level”**. One of ordinary skilled in the art recognizes that signal level is the magnitude level of a signal. Thus based on this portion of paragraph 0009 of Ozaki et al. it would be obvious to one skilled in the art that the display unit 12 of figure 1, does display the correlation value, which is calculated from the signal level which corresponds to magnitude level of estimated correlation value.

Ozaki et al. discloses all of the subject matter as described above except for specifically teaching sequentially switching display contents provided on the display periodically.

However, Tarusawa et al. in the same field of endeavor teach sequentially switching display contents provided on the display periodically (SW1, SW2 in figure 1A, col 5, lines 29-67). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to include switching methodology as taught by Tarusawa et al. to modify the system and method of Ozaki et al. in order to space diversity reception is carried out, whereby one of the diversity antenna is selectively used depending on the reception conditions (see col 5, lines 39-43).

Regarding claim 21:

Ozaki further discloses wherein said display unit displays said estimated correlation value as a numeric value (correlation count section and display section are interpreted to display correlation value as a numeric value) (paragraph 0009), and wherein the user manually adjusts a separation between said plurality of antennas to make the correlation value to be smaller while viewing a current numeric value of said

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estimated correlation value on said display unit (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user) (paragraph 0009).

Regarding claim 23:

Ozaki further discloses wherein said estimated correlation value is displayed as a numeric value correlation count section and display section are interpreted to display correlation value as a numeric value) (paragraph 0009), and wherein the user manually adjusts a separation between said plurality of antennas to make the correlation value to be smaller while viewing a current numeric value of said estimated correlation value that is being displayed (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user, and min values are interpreted to be the correlation value to be smaller) (paragraph 0009, paragraph 0010).

7. Claims 17 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. in view of Tarusawa et al. and further in view of Langberg et al. (US 5,852,630).

Regarding claims 17 and 25:

Ozaki et al. discloses all of the subject matter as described above claims except for a computer memory storing an antenna correlation display computer program product of an adaptive array radio communication apparatus having a plurality of

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antennas, the computer program product causing a computer to execute the steps of:

However, Langberg et al. teaches the antenna correlation adjustment method of a communication device with proceeding can be implemented in software stored in a computer-readable medium. The computer-readable medium is an electronic, magnetic, optical, or other physical device or means that can be contain or store a computer program for use by or in connection with a computer-related system or method. One skilled in the art would have clearly recognized that the method of Ozaki et al., and Langberg et al would have been implemented in software. The implemented software would perform same function of the hardware for less expense, adaptability, and flexibility. Therefore, it would have been obvious to one ordinary skilled in the art at the time of the invention was made to use the software as taught by Langberg et al. in the Ozaki et al. in order to reduce cost and improve the adaptability and flexibility of the communication system.

8. Claims 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. in view of Jollota et al. (US 2004/0142699).

Regarding claims 22 and 24:

As shown in figure 1, Ozaki et al. discloses an adaptive array radio communication apparatus having a plurality of antennas (1 and 2 in figure 1), comprising:

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- an estimation unit configured to estimate a correlation value between signals of a plurality of streams received at respective said plurality of antennas (8 in figure 1, paragraph 9),
- a display unit configured to display said estimated correlation value between said signals of said plurality of streams displaying report is interpreted to be displaying correlation values) (12 in figure 1, paragraph 0009), and
- an antenna correlation adjustment unit (10 in figure 1) configured to cause the correlation value between said signals of said plurality of streams to be altered manually by a user (moving antennas according to spacing data is interpreted to be the adjustment means altered manually by a user) (paragraph 0009),
- wherein said display unit sequentially displays said estimated correlation value (12 in figure 1, paragraph 0009).

Ozaki et al. discloses all of the subject matter as described above except for specifically teaching on said display unit only in a numeric format and then only in a non-numeric format using light emitting diodes.

However, Jollota et al. in the same field of endeavor teach on said display unit only in a numeric format (figure 4E, par 0011, par 0039-0040) and then only in a non-numeric format using light emitting diodes (figure 4A-4D, par 0011, lines 1-18, par 0033-0042). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to design the display unit as light emitting diodes (LED) as taught by Jollota et al. to modify the system and method of Ozaki et al. in order to

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display the signal quality for the system in a numeric format and in a non-numeric format using light emitting diodes (see col 5, lines 39-43).

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. in view of Jollota et al. and further in view of Langberg et al.

Regarding claim 26:

Ozaki et al. discloses all of the subject matter as described above in claim 22 except for a computer memory storing an antenna correlation display computer program product of an adaptive array radio communication apparatus having a plurality of antennas, the computer program product causing a computer to execute the steps of:

However, Langberg et al. teaches the antenna correlation adjustment method of a communication device with proceeding can be implemented in software stored in a computer-readable medium. The computer-readable medium is an electronic, magnetic, optical, or other physical device or means that can be contain or store a computer program for use by or in connection with a computer-related system or method. One skilled in the art would have clearly recognized that the method of Ozaki et al., and Langberg et al would have been implemented in software. The implemented software would perform same function of the hardware for less expense, adaptability, and flexibility. Therefore, it would have been obvious to one ordinary skilled in the art at the time of the invention was made to use the software as taught by Langberg et al. in

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the Ozaki et al. in order to reduce cost and improve the adaptability and flexibility of the communication system.

10. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. in view of Tarusawa et al. as applied to claim 1 above and further in view of Jollota et al.

Regarding claim 32:

Ozaki et al. and Tarusawa et al. discloses all of the subject matter as described in claim 1 above except for specifically teaching a first display content using only numeric values and a second display content using light emitting diodes.

However, Jollota et al. in the same field of endeavor teach a first display content using only numeric values (figure 4E, par 0011, par 0039-0040) and a second display content using light emitting diodes (figure 4A-4D, par 0011, lines 1-18, par 0033-0042). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to design the display unit as light emitting diodes (LED) as taught by Jollota et al. to modify the system and method of Ozaki et al. in order to display the signal quality for the system in a numeric format and in a non-numeric format using light emitting diodes (see col 5, lines 39-43).

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KABIR A. TIMORY whose telephone number is (571)270-1674. The examiner can normally be reached on 6:30 AM - 3:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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/Kabir A Timory/

Examiner, Art Unit 2611

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611